EMSC Connects

Volume 7, Issue 4 **July-August 2018**

Emergency Medical Services for Children
Utah Bureau of EMS and Preparedness

A Word From Our Program Manager

Special points of interest:

- *Auto pedestrian trauma*
- *General trauma management*
- *EMSC workshop report*

It is the second day of summer and starting to get hot. Yesterday I celebrated the summer solstice in the evening, reading a book on the patio and sipping a glass of lavender infused lemonade. I know, I'm living on the edge J Today, I just finished reading the June edition of the Children's Safety Network newsletter. On one hand, I'm looking forward to the long days of summer and the fun activities that are planned throughout Utah. On the other hand, I'm concerned and saddened by the two top reports in the June CSN newsletter. One article is a 16 page vital statistics report from the Centers for Disease Control and Prevention titled Recent Increases in Injury Mortality Among Children and Adolescents Aged 10-19 Years in the United States: 1999-2016. The other report was a story produced by CBS news, Why are deaths among U.S. kids, teens on the rise? Essentially, the CBS article is based on the CDC statistics which states that between, 2013 and 2016, the total death rate for children aged 10-19 has increased by 12 percent. Unintentional injuries increased by 13 percent (2013-2016); suicides increased by 56 percent (2007-2016); and homicides increased by 27 percent (2014-2016). Gun use was a factor in these numbers; 87 percent of all homicides involved a gun and 43 percent of all suicides. Drug overdoses represented 90 percent of all poisonings, reflecting an increase in depression and opioid use. Traffic crashes were the leading cause of death in 2016. Contributing factors were distracted driving and not wearing seatbelts. Almost half of the kids aged 9 to 19 weren't wearing a seatbelt. We need early detection and prevention. So what can we do? The EMS for Children program will continue to provide funding for PEPP courses so EMS providers can become knowledgeable about pediatric care considerations. We can provide resources for the Stop the Bleed program and Buckle Tough teen driving program. So what can the EMS community do? Get involved with 'Stop the Bleed" community training, injury prevention fairs and activities, school programs, "Buckle Tough" teen driving program, gun lock programs and so many more. Bikes are the leading cause of injury for younger children, so get involved with the Bike Rodeo program. Reach out to Allan Liu, at aliu@utah.gov for assistance with any of the prevention programs. If you have implemented programs in your community please share with us so we can spread the word. Together, we can make a difference. Thank you for all of your continued support and efforts to save the lives of children in Utah. Be safe. Enjoy your summer.

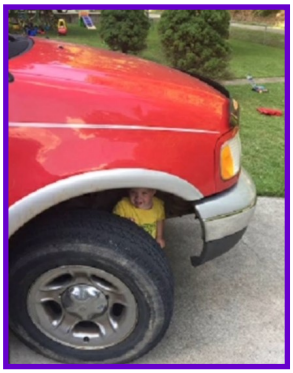
Jolene Whitney

jrwhitney@utah.gov

Inside this issue:

Pedi Point—Tia Dickson RN

It was a cold morning in Salt Lake City. I was 12 and I was angry because my mother hadn't yet pulled out the winter clothes. I wanted my gloves and she said "tough, get to school". Defiantly I put bright pink socks on my hands and left. We had 1 busy street on my route and my friends and I stopped at the intersection. A large truck was prepped to turn left and he waved us to cross in front of him. Unfortunately he blocked our view and the view of the lady in the oncoming car that hit me going about 40 mph. I took the force of the impact to my right hip (I was a tall child). I remember flying up onto the windshield as if I were watching it in slow motion. I landed with a thud. 911 was called, as we waited the initial shock and pain subsided. I remember the driver bending over me and saying, "honey, why do you have socks on your hands?" I have yet to live down the pink socks but I was very fortunate to live through that accident.



In 2017 we had 43 auto-ped deaths in Utah. The last four years have seen pedestrian deaths increase to totals not seen since the 1990s. Driveway rollovers are also on the rise. Are you ready for these calls? Know the risks to protect you own kids and prepare for our open season on trauma.

Major Risk Factors:

- Children less than 5 years of age
- High profile vehicles (SUV, van, truck)
- Vehicles traveling in reverse
- Inadequate supervision of children
- Failure to check around vehicle before moving

The Doc Spot—Sydney Ryan MD

Background:

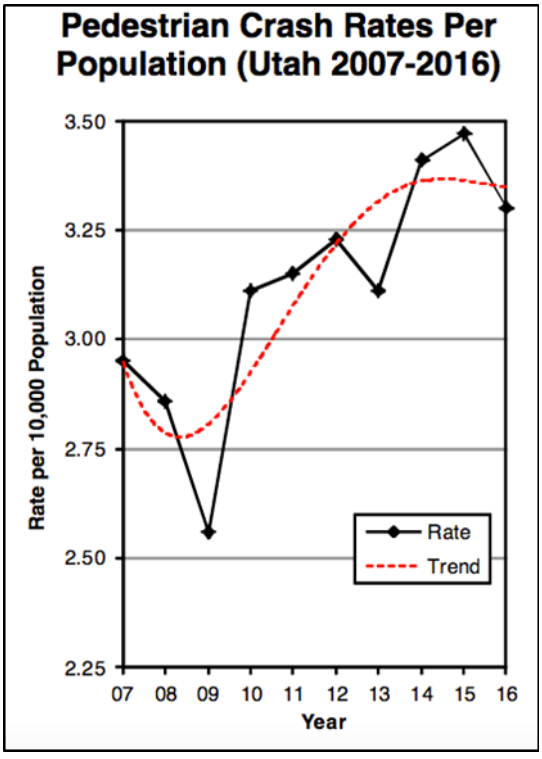
From 2007 to 2016, the total rate per population of pedestrians involved in automobile-pedestrian accidents has increased about 12%. Children ages 0 to 24years make up 28.5% of the total pedestrian deaths that occurred between 2007 and 2016. Pedestrian-motor vehicle crash deaths were highest during the hours of 6 p.m. and 9 p.m and 6 a.m. and 8 a.m. Many of these accidents in younger children are more likely to occur in driveways and parking lots. In the past 10 years, more than 60 Utah children have been killed and more than 500 have been injured by accidental backovers.

Age of Pedestrians Killed (Utah 2007-2016)

Pedestrians Killed												
	Year										Total	
Age	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	#	%
0-4	2	2	0	2	1	2	1	1	5	3	19	5.7%
5-9	1	2	0	1	0	1	0	0	1	5	11	3.3%
10-14	0	3	0	3	5	1	2	3	4	4	25	7.5%
15-19	2	0	0	0	2	3	2	2	1	2	14	4.2%

Pediatric Injury from pedestrian-automobile accidents:

The most common injuries in the pediatric group, aside from abrasions and superficial injuries, involved the head and neck (34.6%). Musculo-skeletal injury is the second most common (22.2%). More specifically, intracranial findings are the most common head and neck injury (31%). C-spine injuries only account for 0.4% of injury distribution. When looking at the musculoskeletal abnormalities, lower extremity accounts for 14.4% of injuries. Pediatric patients tend to have lower Injury Severity Scores (ISS), shorter hospitalizations and fewer surgeries than adult patients.



Emergency Medical Services for Children

Pediatric Injury from pedestrian-automobile accidents:

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Table 3. Injury Distribution*

	Pediatric	
Location	n	%
Head and neck	1,592	34.6
Intracranial	1,433	31.1
Face	78	1.7
Neck	81	1.8
Spine	18	0.4
Chest	44	1.0
Abdomen or pelvis	145	3.0
Musculoskeletal	1,023	22.2
Upper extremity	166	3.6
Lower extremity	662	14.4
Pelvis	75	1.6
Other	120	2.6
External	1,678	36.4
Other	112	2.4
Total	4,612	100.0

*By number of injuries.
†% = percent of all injuries.

Patient assessment:

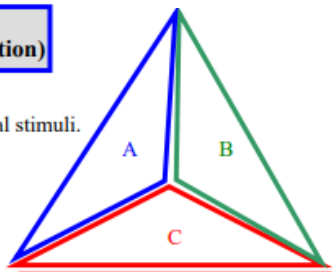
On initial assessment, use the Pediatric Assessment Triangle and confirm that they have a patent airway, breath sounds and appropriate pulse. Goal from scene to transport should be 10minutes. In pediatric patients, using distraction techniques can be helpful when trying to assess (iphone videos, stuffed animals, music, etc). Use the Utah Trauma Triage Field Guidelines to determine transport location (https://bemsp.utah.gov/bemsp/wp-content/uploads/sites/34/2017/04/2017_utah_ems_trauma_guidelines-3.pdf).

Pediatric Assessment Triangle

Airway & Appearance (Open/Clear – Muscle Tone /Body Position)

Abnormal: Abnormal or absent cry or speech. Decreased response to parents or environmental stimuli. Floppy or rigid muscle tone or not moving.

Normal: Normal cry or speech. Responds to parents or to environmental stimuli such as lights, keys, or toys. Good muscle tone. Moves extremities well.



Work of Breathing (Visible movement / Respiratory Effort)

Abnormal: Increased/excessive (nasal flaring, retractions or abdominal muscle use) or decreased/absent respiratory effort or noisy breathing.

Normal: Breathing appears regular without excessive respiratory muscle effort or audible respiratory sounds.

Circulation to Skin (Color / Obvious Bleeding)

Abnormal: Cyanosis, mottling, paleness/pallor or obvious significant bleeding.
Normal: Color appears normal for racial group of child. No significant bleeding.

Decision/Action Points:

- **Any abnormal findings or life-threatening chief complaint** such as major trauma/burns, seizures, diabetes, asthma attack, airway obstruction, etc (urgent) – proceed to Initial Assessment. Contact ALS if ALS not already on scene/enroute.
- **All findings normal** (non-urgent) – proceed to Initial Assessment.

Prevention:

Utah has a program called Spot The Tot that is set up to increase awareness of children in driveways (https://intermountainhealthcare.org/locations/primary-childrens-hospital/hospital-information/child-health-safety/spot-the-tot/). Another recommendation from the American Family Physicians includes driver education for teenagers. It is unclear whether school and community-based educational interventions have reduced pedestrian injury or improved children's safety behaviors.

References:

Peng, Rick Y MD and Bongard, Frederic S MD FACS. Pedestrian Versus Motor Vehicle Accidents: An Analysis of 5,000 Patients. J Am Coll Surg. 1999 Oct;189(4):343-8.

Utah Crash Summary 2016 - Utah Department of Public Safety Highway Safety Office. https://highwaysafety.utah.gov/crash-data/utah-crash-summaries/. 5/20/2018.

Theurer, Wesley M. MAJ, MC and Bhavsar, Amit K. LTC, MC, Prevention of Unintentional Childhood Injury. April 1, 2013 issue. https://www.aafp.org/afp/2013/0401/p502.html

Protocols in Practice –General Trauma Management

GENERAL TRAUMA MANAGEMENT

ALL PROVIDERS / EMT

- ❑ Focused history and physical exam
- ❑ Continuous cardiac monitoring, ETCO2, and pulse oximetry, when available
- ❑ **Treatment Plan**

Primary Survey:

- ◑ Hemorrhage Control: Assess for and stop severe hemorrhage
- ◑ Airway:
  - Assess airway patency, ask patient to talk to assess stridor and ease of air movement
  - Evaluate for injuries that may lead to airway obstruction including unstable facial fractures, expanding neck hematoma, blood or vomitus in the airway, facial burns/inhalation injury
  - Evaluate mental status for ability to protect airway (AVPU="P" or "U" or GCS <8). These patients will require airway protection.
  - Establish a patent airway (with cervical spine precautions)
- Breathing:
  - Assess respiratory rate and pattern, symmetry of chest wall movement, and presence of breath sounds bilaterally
  - If absent or diminished breath sounds in a hypotensive patient, consider tension pneumothorax
  - For open chest wound, place an occlusive dressing sealed on 3 sides
- Circulation:
  - Assess vital signs / check for radial pulse
  - If pelvis is unstable, place pelvic binder or sheet to stabilize pelvis
- Disability (quick neurologic evaluation)
  - Assess pupils, motor movement of extremities, and mental status (AVPU)
- Exposure/Environment:
  - Rapid evaluation of entire body (including back) to assess for injuries
  - Prevent hypothermia
- ◑ Treat for pain and anxiety per the ***Pain and Anxiety Management Guideline***.

- ❑ **Key Considerations**
  - ◑ Scene times should be as short as possible for severely injured patients (Goal: 10 minutes). Perform required procedures enroute to the trauma center.
  - ◑ Severely injured trauma patients should be preferentially transported to a trauma center, as per the ***Field Trauma Triage Guideline.***
  - ◑ **Withholding and termination of resuscitative efforts**
    - Resuscitative efforts should be withheld for trauma patients with the following:
      - Decapitation
      - Hemicorpectomy
      - Signs of rigor mortis or dependent lividity
      - Blunt trauma patients who are apneic, pulseless, and have no organized activity on the cardiac monitor
    - Resuscitative efforts may be terminated in patients with traumatic arrest who have no return to spontaneous circulation after 15-30 minutes of resuscitative efforts, including minimally interrupted CPR
  - ◑ Pediatric lowest acceptable systolic blood pressures are birth to 1 month = 60mmHg, 1 month to 1 year = 70mmHg, 1 year to 10 years is = 70mmHg + (age x 2) and over 10 years = 90mmHg.

Protocols in Practice –General Trauma Management

ADULT

AEMT

- ❑ Establish vascular access and begin fluid therapy per ***IV/IO Access*** and ***Shock and Fluid Therapy Guidelines***
- ❑ **Suspected Tension Pneumothorax:** Evidence of chest trauma + hypotension:
  - Immediate needle decompression of affected side
- ❑ **Traumatic Arrest**
  - Consider bilateral needle decompression based on mechanism of injury

PARAMEDIC

PEDIATRIC (<15 years of Age)
NOTE: Pediatric weight based dosing should not exceed Adult dosing.

AEMT

- ❑ Vascular access and fluid therapy per ***IV/IO Access*** and ***Shock and Fluid Therapy Guidelines***
- ❑ **Suspected Tension Pneumothorax:** Evidence of chest trauma + hypotension:
  - Immediate needle decompression of affected side
- ❑ **Traumatic Arrest**
  - Consider bilateral needle decompression based on mechanism of injury

PARAMEDIC

Pharmacy Facts—Gregory Nelsen PharmD

Tetanus

When patients come into your care facility with wounds, tetanus prophylaxis is always a concern/ consideration. The million dollar question is always, "when was your last tetanus?" The awesome thing about the state of Utah is the USIIS database has vaccine history. This database will help with a majority patients, but not every-one. Those from another state or patients unable to report their name, such as severe trauma patients, can pose a bit more of a challenge.

The table below is from Uptodate.com gives direction on when and how to administer the vaccine.

Previous doses of tetanus toxoid	Clean and minor wound		All other wounds	
	Tetanus toxoid-containing vaccine	Human tetanus immune globulin	Tetanus toxoid-containing vaccine	Human tetanus immune globulin
<3 doses or unknown	Yes	No	Yes	Yes
≥3 doses	Only if last dose given ≥10 years ago	No	Only if last dose given ≥5 years ago[¥]	No

For patients <7 years old- Dtap is recommended and for patients >=7 years old, Tdap is recommended.

Tetanus immune globulin dosing = 250 units IM once (Be sure not to give it in the same place as the vaccine!) This may be given for up to 21 days after the injury.

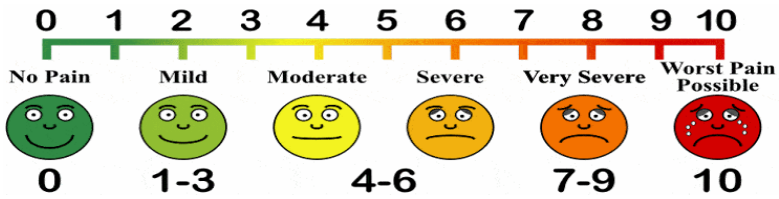
Please refer to your favorite drug reference for more detailed information.

Pharmacy Facts—continued

Pain

Pain can be a large source of fear and discomfort in children. Effective control can improve both the experience for the child and make it easier to assess and care for them as well. One of the best ways to manage pain is non-pharmacological. Never discount the effectiveness of a movie/game on a smart phone or tablet to distract attention away from the injury. Toys are also a great distraction! If you do need to proceed to medications a large source of anxiety is the IV poke. In the back of a rig the likelihood of getting a difficult IV is decreased due to the movement of the vehicle (not for lack of skill or determination).

The IV poke can be avoided in some cases by using intranasal medication administration. This is a very effective way to give some medications but it does have limitations. No more than 2 mL total (1 mL per nostril). If you exceed that volume you have minimal additive effect of the medication and increase the drowning sensation. For pain control, Fentanyl 2 mcg/kg intranasal x1 (using 50mcg/ml, max 100mcg) is a great option. It has an onset of action of 5-10 minutes, per EMS Protocols- AEMT and above with further doses approved by OLMC.



Did You Know—PCH has a process for getting face sheets

Did you know there is a simple way to get face sheets on patients you've transported to the Primary Children's Emergency Department? This can be tricky in the moment especially when the child is critical or they are given a zzz name as a trauma activation. The official process is to send your request to the Medical Records at this email rocroi@imail.org and they will send the face sheet out.

If you want follow up or education on your patients you can email Lynsey.Cooper@imail.org the Emergency Department EMS Liaison but be aware, Lynsey is a clinical nurse and only works 2 days per week so there may be a lag time in her response.

News from National

The Children's Safety Network has released a trio of **infographics** on injury disparities. The infographics focus on:

- Drug Poisoning Deaths
- Homicides
- Suicides

Each infographic breaks out the data by age, race/ethnicity, and location.

Drowning Prevention
Keeping Kids Safe in Open Water | Safe Kids Worldwide

Suicide Prevention
Recommended Standard Care for People with Suicide Risk: Making Health Care Suicide Safe | Action Alliance for Suicide Prevention

Happenings—2018 EMSC Coordinators Workshop

June 21-23rd was the annual EMSC Coordinator Workshop. It is our opportunity to interact with the volunteers that represent EMS and EMSC in each county throughout the state. This year our agenda was full. Lots of opportunity to learn about some fresh concepts in pediatrics like low fidelity sims and Child Life. We discussed pediatric needs throughout the state and gathered ideas to meet the EMSC performance measures. We also honored the EMSC Coordinator of the year Tammy Barton (Garfield County). We look forward to celebrating that award with her at this year's EMS Awards on July 11th. We shoot for 2 coordinators per county and we are short in Daggett, Weber, Morgan, Summit, Wasatch, Tooele, Millard, Beaver, Piute, and Kane Counties. If you are interested in joining this awesome team follow this link and send us an application. https://site.utah.gov/bemsp/wp-content/uploads/sites/34/2016/09/ut_emsc_coord_application.pdf Return applications to Erik Andersen at Eandersen@utah.gov.

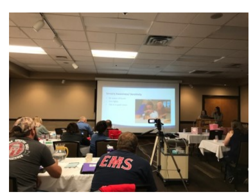



















July 2018

Sun	Mon	Tue	Wed	Thu	Fri	Sat
1	2	3	4	5 PGR PETOS	6	7
8	9	10	11 EMS Awards WPTC	12 PGR	13	14
15	16	17	18 Disaster Class	19 PGR	20	21
22	23	24	25	26 PGR	27	28
29	30	31				

August 2018

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2 PGR PETOS/Grand Co PEPP	3 Montezuma Ck PEPP ▸ San Juan PEPP	4
5	6	7	8	9 PGR	10	11
12	13	14	15	16 PGR	17	18
19	20	21	22	23 PGR	24	25
26	27	28	29	30 PGR	31	

The Pediatric Emergency and Trauma Outreach Series (PETOS) Pediatric lectures for EMS, face time with PCH Physicians, these lectures are monthly on the 1st Thursday from 3-4p. To be held at the Salt Lake Public Safety Bldg 475S 300E SLC Ut 84111

You can attend live or watch the webinar. It will qualify for pediatric CME. Access at https://intermountainhealthcare.org/locations/primary-childrens-hospital/classes-events/petos/

July—Anaphylaxis; **August**—TBA

Pediatric Grand Rounds (PGR) are educational/CME offerings webcast weekly (Sept-May) you can watch live or archived presentations. It is geared towards hospital personnel but will qualify for BEMSP CME Access at https://intermountainhealthcare.org/locations/primary-childrens-hospital/for-referring-physicians/pediatric-grand-rounds/

EMS Grand Rounds (EGR) This is offered monthly, it is geared towards EMS. Live viewings qualify for CME credit.

There are 2 ways to watch

1. Live real time viewing via the internet at: www.emsgrandrounds.com If you would like to receive CME for viewing this presentation live, email Zach Robinson (Zachary.robinson@hsc.utah.edu)
2. Delayed viewing at your personal convenience, a week after the presentation at: www.emsgroundrounds.com

Project ECHO Burn and Soft Tissue Injury (ECHO) has a pediatric and adult component. CME/CEU and MD CME available https://crisisstandardsofcare.utah.edu click request access and follow instructions.

Upcoming Peds Classes, 2017

For PEPP and PALS classes throughout the state contact Erik Andersen at Eandersen@utah.gov

PALS and ENPC classes in Filmore, Delta and MVH contact Kris Shields at shields57@gmail.com

Save the Date

July 11th EMS Awards

July 18th DEM is hosting the G366-Planning for the Needs of Children in Disasters Course, in Salt Lake City. Please register on UTRAIN. The course ID # is: 1076163.

Emergency Medical Services for Children
Utah Bureau of EMS and Preparedness

Utah Department of Health
Bureau of EMS and Preparedness
Emergency Medical Services for Children
3760 S. Highland Drive, Room 133
Salt Lake City, UT 84106

Phone: 801-707-3763
Email: tdickson@utah.gov

The Emergency Medical Services for Children (EMSC) Program aims to ensure that emergency medical care for the ill and injured child or adolescent is well integrated into an emergency medical service system. We work to ensure that the system is backed by optimal resources and that the entire spectrum of emergency services (prevention, acute care, and rehabilitation) is provided to children and adolescents, no matter where they live, attend school or travel.

WE ARE ON THE WEB
HTTPS://BEMSP.UTAH.GOV/

Coordinators in their Community

EMSC Coordinator Matt Osterman recruited his daughter to man a Buckle Tough Booth in the South Summit County Health Fair.

Thanks Matt Osterman and family!!!

Check out our Buckle Tough PSA on YouTube

https://youtu.be/zVJnvkkh7uw